

A NEW GENUS AND SPECIES OF XYSTODESMID MILLIPED FROM TENNESSEE

By WILLIAM T. KEETON¹

During the past five years, three separate collections of an undescribed xystodesmid milliped from Tennessee have been sent to me for study. Although this new species cannot be placed in any of the existing genera, I have hesitated in describing a new genus for it in the hope that the revisionary studies of the Xystodesmidae currently being conducted by Richard L. Hoffman (e.g. 1956, 1958) and by me (1959) would soon result in a clearer picture of the relationships of the various "fontariid" genera. It has become increasingly evident, however, that the problems involved in critical treatments of such important genera as *Apheloria*, *Sigmoria*, *Cleptoria*, and *Sigiria* (the genera which, together with a few others such as *Brachoria*, constitute the section of the Xystodesmidae to which the new Tennessee form belongs) are such as to delay indefinitely the completion of those works. Accordingly, I have decided to describe the new genus, but to delay detailed discussion of its affinities until such time as the characteristics of the other groups involved have been clarified.

Hubroria, n. gen.

Diagnosis.—A genus of the "fontariid" group of the Xystodesmidae characterized primarily by the form of the telopodites of the male gonopods, which do not curve in the simple or sigmoid arcs typical of related genera such as *Apheloria* and *Sigmoria*; the short distal portion of telopodite abruptly narrowed, twisted, and curved cephalad in a plane nearly parallel to the body of the animal, in this character somewhat resembling *Brachoria mendota* Keeton but without any trace of a cingulum. Prefemoral spines extremely long and stout, much larger than in any closely related genus.

Moderately large, broad-bodied forms; paranota wide, slightly overlapping, continuing slope of dorsum. Twenty segments; segments 5, 7, 9, 10, 12, 13, 15–19 with repugnatorial pores, these dorsal in position in moderate paranotal swellings, the swellings less pronounced than in many xystodesmid genera. Four antennal sensory cones.

Type species.—*Hubroria picapa*, new species.

¹Department of Entomology (Biology Section), Cornell University, Ithaca, New York. The expense of publishing the plate in this paper was paid by the Griswold Fund of the Department of Entomology, Cornell University.

Hubroria picapa, n. sp.

(Figures 1-4)

Type specimens.—Male holotype deposited in the U. S. National Museum; collected by Leslie Hubricht, May 30, 1958, on roadside, 2.3 miles north-northeast of Sunbright, Morgan County, Tennessee. Male and female paratypes in Chicago Natural History Museum; collected by Bernard Benesh, June, 1949, Sunbright, Tennessee. Male paratype in author's collection; collected by Bernard Benesh, June 2, 1952, Burrville, Morgan County, Tennessee.

Description.—The diagnosis is that given for the genus. Length of holotype, 43 mm.; width, 10.7 mm.; lengths of male paratypes, 44 and 42.3 mm.; widths, 10.3 and 10.4 mm.; length of female paratype, 46 mm.; width, 10.7 mm.

Vertigial sulcus distinct, ending a little above level of antennal sockets. Antennal grooves moderately deep, the clypeal borders more abrupt than the vertigial. Clypeal margins smoothly curved; clypeal setae numerous, their number very variable but always greater than 20. Labrum with 3 distinct teeth, subequal in length; labral setae variable in number but generally about 20. Antennae long and slender, slightly surpassing caudal margins of 3rd tergites when pulled back over body; 2nd articles exceeding lateral corners of clypeus, articles becoming increasingly setose distally; articles in order of decreasing length: 2, 3, 4, 5, 6, 1, 7.

Collum subovoid, its precise shape variable; paranota rounded laterally; anterior margins of paranota set off by distinct submarginal grooves which run from lateral extremes of collum to points opposite vertigial margins of antennal grooves.

Tergites coriaceous, those of 2nd segment with rounded paranota; 3rd tergite showing slightly more angle at posterolateral corners of paranota, these angles becoming progressively more evident on succeeding segments, those of tergite 9 and succeeding midbody segments only very slightly produced caudad as result of caudal rounded or squared, never acute, borders of paranotal swellings.

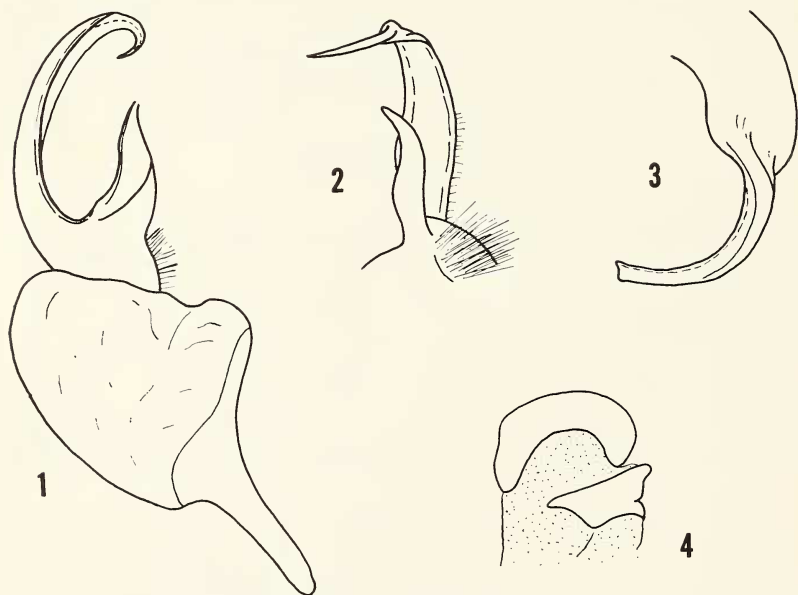
Telson subtriangular in dorsal aspect, the apex truncate; a very evident subterminal lateral tubercle on each side. Anal valves coriaceous, with prominent mesal lips. Hypoproct with convex lateral margins meeting at small terminal protuberance; lateral tubercles subterminal.

Pleural areas of prozonites smooth, those of metazonites very coriaceous. Sternal areas smooth, those of metazonites of immediately postgenital segments deeply grooved medially, their posterolateral corners with pronounced swollen areas; both groove and swollen areas becoming much less evident on more caudal segments,

where sternal areas are also broader.

Legs long and slender; all podomeres densely setose. Prefemora with long sharp conical distal ventral spines; anterior coxae without such armature, those of segment 10 and succeeding segments with only weak trace of armature. Third podomeres much the longest. Tarsal claws long and distally curved, with a prominent ridge running along dorsal surface and several smaller ridges lateral to it on each side.

Genital processes of coxae of 2nd legpair of male short and truncate, with several setae. Sternum of 3rd legpair with pair of relatively large, longitudinally elongate, confluent processes; sternum of 4th legs with pair of medially confluent digitiform processes extending ventrad almost to level of ventral surfaces of coxae; similar pair of processes between bases of 5th legs in 2 males, but these not confluent; no processes between 5th legs of 1 male; no processes between bases of legs of 6th segment in any specimens, sternal areas of this segment much broader than those of preceding segments, this



EXPLANATION OF PLATE

Hubroria picapa.—Fig. 1, left gonopod of male, cephalic view. Fig. 2, The same, telopodite portion, mesal view. Fig. 3, The same, distal portion of telopodite, ventral view. Fig. 4, Left cyphopod of female, lateral view of valve and receptacle.

particularly true of wide area between 7th legs.

Sternum between 3rd legs of female very narrow and produced ventrad to form pair of short confluent processes. Sternum between 4th and 5th legs broader, with pair of rounded humps between bases of 5th legs, these humps separated by longitudinal mesal groove. Sternum of 6th segment nearly as wide as those of succeeding segments, without such prominent humps.

Gonopod aperture large and suboval, cephalic border emarginate. Gonopods large, fully exposed in ventral view. Coxae of gonopods connected by membrane and muscle only, no sternal remnant. Prefemora with the usual setose cushion on caudal surfaces; prefemoral spines very long and thick, extending ventrad, then curving slightly cephalad distally; prominent ridge running across cephalic surface of each spine from dorsolateral base to mesal surface about midway of its length and thence to tip of spine; this ridge, together with one running along cephalolateral margin, forming decidedly concave cephalomesal surface on each spine. Arc of each telopodite curving gently cephalomesoventrad from its base, then abruptly narrowed and somewhat twisted (fig. 3), the short distal thinner portion curved cephalad in smooth arc, with narrowly subspatulate end; seminal canal ending on ventral surface of lateral corner of spatulate end. (All directions here mentioned refer to gonopods in fully erect position; gonopods are sometimes held closer to pregenital ventral body surfaces and all directions would then, of course, be changed.)

Cyphopod (fig. 4) with both valves similar in shape and length, each deeply emarginate dorsally; receptacle with lateral and mesal arms similar, cephalic surface (not shown in figure) irregular, forming 3 indistinct lobes, these faintly papillate.

Color faded, but apparently dorsum was dark brown with light paranota, these light areas connected on each tergite by light band running along caudal portion of metazonite.

REFERENCES CITED

- Hoffman, Richard L.** 1956. Revision of the milliped genus *Dixioria* (Polydesmida: Xystodesmidae). Proc. U. S. Nat. Mus. 105: 1-19, 4 figs.
- 1958. Revision of the milliped genus *Pachydesmus* (Polydesmida: Xystodesmidae). Proc. U. S. Nat. Mus. 108: 181-218, 12 figs.
- Keeton, William T.** 1959. A revision of the milliped genus *Brachoria* (Polydesmida: Xystodesmidae). Proc. U. S. Nat. Mus. 109: 1-58, 11 figs.

**A REPORT ON THE BLACKFLIES (SIMULIIDAE) OF
DELAWARE.¹ PART I. RECORD OF DELAWARE
SPECIES AND AN INTRODUCTION TO A
SURVEY OF THE WESTERN BRANCHES
OF THE CHRISTIANA RIVER, NEW
CASTLE COUNTY.**

By DOUGLAS W. S. SUTHERLAND and RICHARD F. DARSIE, JR.²

ABSTRACT

This is the first detailed report (in two parts) on the occurrence of Simuliidae in Delaware. Only three species have been recorded prior to this report, viz, *Cnephia mutata* (Mall.), *Prosimulium hirtipes* (Fries) and *Simulium decorum* Walk. Delaware locality records are given for these and the following species, which are being listed for the first time: *Prosimulium magnum* D. & S., *Simulium aureum* Fries, *S. jenningsi* Mall., *S. tuberosum* (Lund.), *S. venustum* Say, *S. verecundum* S. & J. and *S. vittatum* Zett.

During July, 1958, 21 stations in 12 tributaries of the Christiana River, New Castle County, Del., were searched for presence of blackfly immatures. Of these, 14 were positive. In all 1164 larvae and pupae were collected and 147 of them were reared to adults in the laboratory.

In Part II descriptions of the habitats, a table of blackfly species associations, and a listing of other insect inhabitants are given.

INTRODUCTION

The Simuliidae, or blackflies, are haematophagous insects of considerable importance not only as pests of man and animals but also as vectors of diseases. No comprehensive report of the occurrence of blackflies in Delaware has been published. Recorded here, therefore, are details of the distribution of ten species found in Delaware, followed by data on a concentrated survey of blackfly breeding in the western branches of the Christiana River, New Castle County, Delaware, conducted by the senior author.

¹ Published as Miscellaneous Paper No. 355, with the approval of the Director of the Delaware Agricultural Experiment Station. Publication 305 and Scientific Article 221 of the Department of Entomology, November, 1959.

² Graduate Assistant and Associate Professor, respectively, Department of Entomology, Delaware Agricultural Experiment Station, Newark.